

P-Type Conductivity and Transparent Electronics

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Transparent conductors are used in a wide variety of passive applications from contacts to solar cells to heat reflectors. Recently, they have been incorporated as the active elements in electronic devices such as transparent thin-film transistors. While n-type transparent conductors are well known, p-type conductivity in wide band-gap semiconductors has been more difficult to achieve. Promising candidates from among the oxides, sulfides and sulfide fluorides will be discussed, along with their optical and transport properties and use in electronic devices.